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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,592

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Reinhold Rueger

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MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
2200 CLARENDON BLVD.
SUITE 1400
ARLINGTON, VA 22201

EXAMINER

PARVINI, PEGAH

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

05/21/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@mwzb.com

Office Action Summary	Application No.	Applicant(s)	
	10/539,592	RUEGER ET AL.	
	Examiner	Art Unit	
	PEGAH PARVINI	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, and 3-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "...a first layer in the substrate of SiO₂..."; this makes the claim unclear in two different ways, (1) it is unclear whether the substrate is SiO₂ or it could be any of the substrates mentioned later in the claim, (2) based on this recitation, it is unclear whether SiO₂ is applied onto the substrate OR is incorporated within the substrate.

For the purpose of examination, it is assumed that SiO₂ is applied onto the substrate and is not incorporated into the substrate.

Claims 3-13 are rejected under 112-second paragraph as being dependent upon the rejected claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-4, 6-7, 9, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,692,561 to Shoen et al.

Shoen et al. disclose interference pigments based on multi-layered plate-like substrate with at least sequence of layers consisting of (A) a colorless layer with a refraction index $n \leq 1.8$; (B) a high-index layer consisting of a mixture of TiO_2 and Fe_2O_3 and optionally one or more metal oxide layers and optionally (C), an outer protective layer (Abstract). The reference, further, discloses that suitable base substrates may be natural and/or synthetic mica, glass flakes or aluminum oxides (column 2, lines 17-50). With reference to thickness, Shoen et al. teach that thickness of the individual layers of high and low refractive index on the base substrate is essential for the optical properties of the pigment (column 2, lines 59-68), and that the thickness would affect the color (column 3, lines 1-21). Therefore, it would have been obvious to a person of ordinary skill in the art to obtain the optimum layer thicknesses upon routine experimentation with depending on the field of work and the color intended from said pigment. Nevertheless, the reference suggests a layer thickness of between 20-600nm (column 3, lines 22-26).

Shoen et al., also, disclose SiO_2 as the metal oxide having the low refractive index value (i.e. lower than 1.8) and TiO_2 and Fe_2O_3 as the metal oxides having high refractive index values (i.e. higher than 1.8) (column 3, lines 7-40 and 50-63). The reference, then continues to disclose a layer thickness of 30-600nm for the low refractive index layer. Furthermore, Shoen et al. teach that the preferred structure of the above pigment is the one having four optical interference layers in the sequence (A) (B) (A) (B) and optionally (C) (column 3, lines 45-49).

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Shoen et al. disclose that the metal oxide layers are applied through wet-chemical process through which one or more hydrolysable metal salts are added at a pH which is suitable for hydrolysis, the pH being selected in a way that the metal oxides are precipitated directly without secondary precipitation; the substrate particles are suspended in water (column 4, lines 6-40). The coating, can furthermore, also be carried out in a fluidized-bed reactor.

Additionally, Shoen et al. disclose the use of said pigments in formulations such as paints, printing inks, surface coatings, plastics, ceramic materials, etc. (column 2, lines 29-38; column 4, lines 63-68).

Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoen et al. as applied to claim 1 above, and further in view of WO 01/77235 to Steudel et al.

Shoen et al. teach platelet-like substrates such as mica coated with low refractive index layer such as SiO_2 and then, further coated with high refractive index layer containing a mixture of TiO_2 and Fe_2O_3 wherein there may be other optional metal oxide layers and an optional protective layer wherein the SiO_2 layer has a thickness of 30-600nm as detailed out above.

Shoen et al. do not disclose the SiO_2 layer is doped with carbon black particles, metal particles, and/or colored pigments. Furthermore, although Shoen et al. disclose the outer protective layer, they do not disclose that the protective layer improves light, weather and temperature stability of the pigment.

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Steudel et al. disclose multilayer pigment based on platelet-form of mica, which is coated with colored or colorless oxides of high and low refractive index materials in which SiO_2 is disclosed as a low refractive index material and TiO_2 is disclosed as a high refractive index material (Abstract; [0019]). Steudel et al., further, disclose introducing carbon black fine particles into the low refractive index layer to achieve specific color effects; also, the reference discloses providing a protective layer onto the multilayer pigment ([0039], [0040]).

Thus, it would have been obvious, at the time the invention was made, to modify Shoen et al. in order to introduce carbon black fine particles into the low refractive index layer of SiO_2 which is coated onto the substrate motivated by the fact that these fine carbon black particles help to achieve specific color effects. Moreover, it would have been obvious and apparent that the use of the outer protective coating layer on the pigment is to protect it in harsh environment and increase its stability upon exposure to light, weather and chemicals to increase the compatibility of said pigment in various media as that made obvious by Steudel et al., in paragraph [0040].

Claims 1, 4, 6-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0039836 to Pfaff et al.

Pfaff et al. disclose multilayered interference pigments comprising a plate-let shape substrate of SiO_2 in which is coated with alternating layers of high and low refractive index material; the reference discloses SiO_2 as an example of low refractive index material having $n \leq 1.8$ and TiO_2 as a high refractive index material having $n > 1.8$

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in which the thickness of the individual layer of low refractive index material is from 80-400nm, preferably, from 100-350nm (Abstract; [0025]-[0027], [0031]-[0035], [0041]-[0045]). Pfaff et al. disclose a thickness range of SiO₂ platelets (i.e. substrate) as being from, preferably, 100-600nm ([0022]). Furthermore, Pfaff et al. disclose that the finished pigment may also be subjected to after-treatment of after-coating (i.e. outer protective layer) in order to increase its light, weather or chemical stability or in order to simplify handling of the pigment, in particular with respect to incorporation into various media ([0063]).

Thus, a thickness range of from about 1.6 to about 12.5 nm is obtained for the substrate. Considering the fact that instant claims recite a thickness of 5-350 nm for the first layer coated onto the substrate; there is an overlapping ranges of thickness for the first layer of SiO₂ between the instant reference and that of the claims. This is because if taking 12.5nm for the thickness of what is called as substrate by Pfaff et al. which is also made up of SiO₂, then this is higher than 5nm claimed in instant claims; thus, the remaining (12.5nm-5nm= 7.5nm) is taken to be the thickness of the first layer of

It is noted that based on the recitation of instant claims, the substrate may be SiO₂ and the first layer may be SiO₂ as well; therefore, it is, further, noted that in such case no differentiation can be drawn between SiO₂ of substrate and SiO₂ of the first layer which is applied onto the substrate. Therefore, the fact that the reference discloses SiO₂ substrates having thickness of from 100-600nm which encompass 5-350nm thus leaving some thickness for the first layer of SiO₂ (as claimed) is seen to read on the limitation of instant claims absence clear evidence showing the contrary.

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Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pfaff et al. as applied to claim 1 above, and further in view of U.S. Patent No. 6,689,205 to Brückner et al.

Pfaff et al. disclose multilayered interference pigments having substrates made up of SiO₂ platelets coated with high and low refractive index material as detailed out above.

Pfaff et al. do not expressly disclose the use of a substrate made up of glass flake or mica flakes or aluminum oxide.

However, it would have been obvious and within the scope of a skilled artisan to have utilized any of the known support/substrate utilized in this field of art such as glass flakes or mica flakes motivated by the fact that Brückner et al., drawn to multilayer interference pigments consisting of transparent carrier material (i.e. substrate or support) coated with alternating layers of metal oxides of low, such as SiO₂, and high, such as TiO₂, refractive index wherein said pigment is produced by wet process, disclose the use of carrier materials (i.e. substrates) such as glass flakes in order to produce an interference pigment having strong interference colors and/or a strong angular dependency of the interference colors (column 1, lines 39-45; claim 3).

One skilled in the art would have appreciated that the use of any and all known substrate in the pigment industry is well within the scope of the skilled artisan depending on the application sought and the desired characteristics (e.g. color, etc.) intended from the final pigment.

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Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pfaff et al. as applied to claim 1 above, and further in view of Steudel et al.

Pfaff et al. disclose multilayered interference pigments having substrates made up of SiO₂ platelets coated with high and low refractive index material as detailed out above.

Pfaff et al. do not disclose the SiO₂ layer is doped with carbon black particles, metal particles, and/or colored pigments.

Steudel et al. disclose multilayer pigment based on platelet-form of mica, which is coated with colored or colorless oxides of high and low refractive index materials in which SiO₂ is disclosed as a low refractive index material and TiO₂ is disclosed as a high refractive index material (Abstract; [0019]). Steudel et al., further, disclose introducing carbon black fine particles into the low refractive index layer (i.e. SiO₂) to achieve specific color effects ([0039], [0040]).

Thus, it would have been obvious, at the time the invention was made, to modify Pfaff et al. in order to introduce carbon black fine particles into the low refractive index layer motivated by the fact that these fine carbon black particles help to achieve specific color effects.

Response to Amendment

Applicants' amendments to claims 1 and 14, filed January 9, 2009, are acknowledged. However, said amendments do not place the claims or the application in condition for allowance.

Response to Arguments

Applicant's arguments with respect to claims 1 and 14, in view of the new amendments to said claims have been fully considered and are persuasive and therefore all the previous rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made as detailed out above in view of the new amendments. In view of this, applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejections defined above, thus this action is being made final.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGAH PARVINI whose telephone number is (571)272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pegah Parvini/
Examiner, Art Unit 1793

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793